REMARKS

This Amendment submitted herewith amends claims 1-8 to place the instant application in better compliance with commonly accepted US patent practice and to provide antecedent basis for all claim limitations. No new matter has been introduced through the foregoing amendments.

Entry of this Amendment under Rule 1.114 is courteously solicited as it merely embodies the correction of formal matters without changing the scope of the previously recited claims. No new matter is presented in this Amendment.

In the instant Office Action, the Patent and Trademark Office (PTO) rejects claim 1 under 35 U.S.C. §112, second paragraph, asserting that independent claim 1 recites limitations of "the used fluid" and "the stop valve" for which there is insufficient antecedent basis. Applicants amend claim 1, replacing the term "the used fluid" with "fluid used as a result of the reaction," and replacing the term "the stop valve" with the term "stop valves." Accordingly, withdrawal of the rejection is respectfully requested.

The Office further rejects claims 1-16 under 35 U.S.C. 102(b) over U.S. Patent Application No. 2001/0001060 to Kellogg et al. ("Kellogg"). A rejection based on 35 U.S.C. §102 requires every element of the claim to be included in the reference, either directly or inherently. Applicants respectfully submit that not only does Kellogg fail to disclose all the recited elements, taken as a whole, Kellogg does not suggest Applicants' claimed device for controlling fluids using surface tensions.

Independent claim 1 recites, *inter alia*, a device for controlling fluid using surface tension of the fluid comprising at least one storage chamber, at least one reaction chamber, and at least one exhaust chamber. Furthermore, claim 1 specifically recites "wherein said fluid moves from said storage chamber to said reaction chamber and exhaust chamber by means of surface tension," (Emphasis added).

Notwithstanding the assertions made by the PTO on page 3 of the Office Action that Kellogg discloses the Applicants' fluidic control device, Applicants respectfully submit that throughout the specification Kellogg describes the apparatus as "utilizing the centripetal force

resulting from rotation of the platform to motivate fluid movement through microchannels embedded in the microplatform," (*see* Abstract). In addition, paragraph [0115] discloses wherein "[a]t a second rotational speed f2, that is greater than the first rotational speed f1,...the capillary junction between channel 305 and the second fluid chamber 307 is overcome, and fluid remaining in the first fluid chamber 303 is delivered into the second fluid chamber 307." Indeed, even the title of Kellogg, "DEVICES AND METHODS FOR USING CENTRIPETAL ACCELERATION TO DRIVE FLUID MOVEMENT IN A MICROCLUIDICS SYSTEM" (emphasis added), discloses an apparatus using centripetal force to control the flow of fluids, and not the use of surface tension, as recited in claim 1.

In other words, unlike Applicants' device that uses the principle of surface tension and the introduction of fluid from a connecting side channel to urge the movement of fluids between chambers, Kellogg uses capillary barriers, i.e. fluid chamber 303 to prevent flow of fluid and requires a centripetal force to overcome the capillary barrier. Therefore, based solely upon basic differences between the Applicants' surface tension operating device and Kellogg's centripetal force operating device, withdrawal of the rejection under 35 U.S.C. 102(b) is respectfully requested.

Notwithstanding the above argument that the Applicants' device operates using a totally different physical principle than Kellogg, Applicants further submit that the device disclosed by Kellogg fails to disclose, teach, or suggest several claimed elements of the device.

At page 3 of the Office Action, the Examiner asserts that Kellogg's overflow chamber 306 discloses "at least one exhaust chamber in which the used fluid is exhausted," as recited in claim 1. Applicants respectfully disagree.

Kellogg appears only to disclose, at paragraph [0112], wherein chamber 306 is an "overflow chamber" that receives fluid from fluid chamber 303 through overflow capillary 304 when the device is rotated. Kellogg makes no suggestion that the fluid overflowing in chamber 306 is "used fluid" being exhausted to an "exhaust chamber," as recited in claim 1. Indeed, as chamber 303 is not a reaction chamber, there is no used fluid to be exhausted.

Applicants further submit that channel 305 fails to disclose "at least one side connecting channel which connects the first stop valve to the second stop valve, wherein the stop valves stop

the flow of the fluid using the surface tension of the fluid and the flow through the connecting channel opens the stop valves," as recited in claim 1. Although capillary 305 may connect fluid chamber 303 to fluid chamber 307, capillary 305 is not a "side connecting channel." A "side connecting channel" implies a channel, apart from a main channel. Despite it physical location on a "side" of chambers 303 and 307, capillary 305 is, as illustrated in Figs. 6A-6K, the only means of communicating fluid between the chambers, and therefore cannot be considered a "side connecting channel," as recited in claim 1. Applicants respectfully submit that to one or ordinary skill in the art, the figures and text of Kellogg would not suggest capillary 305 being a "side connecting channel" connecting a first stop valve and a second stop valve wherein fluid chambers 303 and 307, in addition to being the stop valves, are the chambers being connected by the second stop valve.

Even more telling that the Applicants "at least one side connecting channel" refer to a path other than a primary path through the two stop valves, is the failure of Kellogg to reasonably suggest how the flow of fluid through capillary 305 can open the stop valves since any flow through capillary 305 can only occur once the stop valves were already open. Accordingly, based upon an a logical interpretation of the figures and disclosed operation of Kellogg, Applicants respectfully submit that Kellogg fails to disclose the claimed "at least one side connecting channel."

Furthermore, Applicants respectfully submit that Kellogg's air circulating channels 311, do not suggest "at least one flow delay part that is formed within the side connecting channel and delays flow of the fluid by surface tension of the fluid." Notwithstanding Applicants' position that capillary 305 does not disclose a side connecting channel, Applicants submit that, as illustrated in Fig. 6A, air circulating channel 311 is not formed within capillary 305. As claim 1 recites wherein the flow delay part is formed within the side connecting channel, Applicants respectfully submit that air circulating channel 311 fails to disclose, teach, or suggest the Applicants' claimed device.

Based upon the arguments submitted above, not only does Kellogg operate on a totally different scientific principle than the Applicants device, Kellogg further does not disclose, teach or suggest each and every limitation recited in independent claim 1. Accordingly, the rejection

of claim 1 under 35 U.S.C. §102(b) is improper. Applicants respectfully submit, therefore, that independent claim 1 is patentable over Kellogg.

Claims 2-16 depend from independent claim 1 and are likewise patentable over Kellogg at least for their dependence on claim 1 an allowable base claim, as well as for additional features they recite. Withdrawal of the rejection over Kellogg is respectfully requested.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration because the amendments amplify issues previously discussed throughout prosecution; (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-16 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,
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